

**WHAT IS CLAIMED IS:**

1. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a molded stem extending outwardly from and integrally with the sheet-form base, and

5 a head extending forward from a distal end of the stem to a tip, the head having a lower surface forming a crook for retaining loops;

wherein the head has an overall height, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the head, that is greater than 55 percent of an overall height of the fastener element, measured perpendicular to the  
10 sheet-form base.

2. The touch fastener component of claim 1 wherein each fastener element has multiple heads extending in different directions and forming separate crooks.

15 3. The touch fastener component of claim 2 wherein each fastener element has two heads extending in essentially opposite directions.

4. The touch fastener component of claim 3 wherein each fastener element defines an upper well between the two oppositely-directed heads, the well extending down to  
20 a height, measured perpendicularly from the base, of at least about 70 percent of the overall height of one of the two oppositely-directed heads.

5. The touch fastener component of claim 3 wherein each fastener element has an overall length between opposite extents of the oppositely-directed heads, measured  
25 parallel to the base, of at least 1.8 times the overall height of the fastener element.

6. The touch fastener component of claim 1 wherein each fastener element head tip defines an entrance height, measured perpendicular to the sheet-form base below a lowermost extent of the tip, of between about 7 and 12 millimeters.

7. The touch fastener component of claim 1 wherein a ratio of an overall height of the crook, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the tip, is greater than 0.6.

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8. The touch fastener component of claim 1 wherein the overall head height is less than 60 percent of the overall height of the fastener element.

9. The touch fastener component of claim 1 wherein the tip extends toward the base.

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10. The touch fastener component of claim 1 wherein the lower surface of the head is arched.

11. The touch fastener component of claim 1 wherein the head and stem form a unitary molded structure.

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12. The touch fastener component of claim 1 wherein the head has a surface of resin cooled against a mold surface.

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13. The touch fastener component of claim 1 wherein the stem has opposing surfaces defined by severed resin.

14. The touch fastener component of claim 1 wherein the stem and head have side surfaces lying in parallel planes.

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15. The touch fastener component of claim 1 wherein the crook overhangs a surface of the stem.

16. The touch fastener component of claim 15 wherein the overhung stem surface extends at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

5 17. The touch fastener component of claim 1 wherein each fastener element has an overall height of between about 10 and 50 millimeters.

18. The touch fastener component of claim 17 wherein each fastener element has an overall height of between about 20 and 30 millimeters.

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19. The touch fastener component of claim 1 wherein each fastener element head has an overall height of between about 10 and 20 millimeters.

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20. The touch fastener component of claim 1 wherein each fastener element crook defines an overall crook height, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the crook, of at least 6.0 millimeters.

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21. The touch fastener component of claim 1 further comprising a backing material laminated to a side of the base opposite the fastener elements.

22. The touch fastener component of claim 1 wherein the fastener elements are arranged in a density of at least 350 fastener elements per square inch of the base.

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23. The touch fastener component of claim 1 wherein the fastener elements together cover at least 20 percent of an overall surface area of the base from which the fastener elements extend.

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24. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:  
a molded stem extending outwardly from and integrally with the sheet-form base, and

two heads extending in opposite directions from a distal end of the stem to corresponding tips; the heads having lower surfaces forming crooks for retaining loops;

wherein at least one head has an overall height, measured perpendicular to the sheet-form base from a lowermost extent of the tip of the head to an uppermost extent of the head, that is greater than half of an overall height of the fastener element, measured perpendicular to the sheet-form base.

25. The touch fastener component of claim 24 wherein both of the heads have overall heights that are greater than half of the overall height of the fastener element.

26. The touch fastener component of claim 24 wherein each fastener element defines an upper well between the two oppositely-directed heads, the well extending down to a height, measured perpendicularly from the base, of at least about 70 percent of the overall height of one of the two oppositely-directed heads.

27. The touch fastener component of claim 24 wherein each fastener elements has an overall length between opposite extents of the oppositely-directed heads, measured parallel to the base, of at least 1.8 times the overall height of the fastener element.

28. The touch fastener component of claim 24 wherein each fastener element head tip defines an entrance height, measured perpendicular to the sheet-form base below a lowermost extent of the tip, of between about 7 and 12 millimeters.

29. The touch fastener component of claim 24 wherein a ratio of an overall height of the crook, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the tip, is greater than 0.6.

30. The touch fastener component of claim 24 wherein the overall head height is less than 60 percent of the overall height of the fastener element.

31. The touch fastener component of claim 24 wherein the crooks overhang surfaces of the stem, and wherein the overhung stem surfaces extend at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

5 32. The touch fastener component of claim 24 wherein each fastener element has an overall height of between about 10 and 50 millimeters.

33. The touch fastener component of claim 24 wherein each fastener element head has an overall height of between about 10 and 20 millimeters.

10 34. The touch fastener component of claim 24 wherein each fastener element crook defines an overall crook height, measured perpendicular to the sheet-form base from a lowermost extent of an associated tip to an uppermost extent of the crook, of at least 6.0 millimeters.

15 35. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a molded stem extending outwardly from and integrally with the sheet-form base, and  
a head extending forward in an engagement direction from a distal end of the stem to  
20 a tip, the head having a lower surface forming a crook for retaining loops;

wherein the fastener element has a bulk aspect, defined as a ratio of the product of an overall length of the fastener element, measured parallel to the sheet-form base in the engagement direction above an elevation of the tip, and fastener element thickness, measured parallel to the sheet-form base and the engagement direction at the elevation of the tip, to an  
25 overall height of the fastener element, measured perpendicular to the sheet-form base, of more than 0.020 inch (0.51 mm).

36. The touch fastener component of claim 35 wherein each fastener element has multiple heads extending in different directions and forming separate crooks.

37. The touch fastener component of claim 36 wherein each fastener element has two heads extending in essentially opposite directions, the overall length of the fastener element spanning the two oppositely-directed heads.

5 38. The touch fastener component of claim 37 wherein the overall length of the fastener element is at least 1.8 times the overall height of the fastener element.

39. The touch fastener component of claim 35 wherein each fastener element head tip defines an entrance height, measured perpendicular to the sheet-form base below a  
10 lowermost extent of the tip, of between about 7 and 12 millimeters.

40. The touch fastener component of claim 35 wherein a ratio of an overall height of the crook, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the  
15 sheet-form base below a lowermost extent of the tip, is greater than 0.6.

41. The touch fastener component of claim 35 wherein the product of overall length and fastener element thickness, multiplied by a number of fastener elements disposed in an array on the base, is greater than about 20 percent of an area of the base populated by  
20 the array.

42. The touch fastener component of claim 35 wherein the crook overhangs a surface of the stem, and wherein the overhung stem surface extends at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.  
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43. The touch fastener component of claim 35 wherein each fastener element has an overall height of between about 10 and 50 millimeters.

44. The touch fastener component of claim 35 wherein each fastener element head  
30 has an overall height of between about 10 and 20 millimeters.

45. The touch fastener component of claim 35 wherein each fastener element crook defines an overall crook height, measured perpendicular to the sheet-form base from a lowermost extent of an associated tip to an uppermost extent of the crook, of at least 6.0 millimeters.

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46. A touch fastener component having a sheet-form base and an array of fastener elements, each fastener element comprising:

a molded stem extending outwardly from and integrally with the sheet-form base, and a head extending forward from a distal end of the stem to a tip, the head having a

10 lower surface forming a crook for retaining loops;

wherein a ratio of an overall height of the crook, measured perpendicular to the sheet-form base from a lowermost extent of the tip to an uppermost extent of the crook, to an entrance height measured perpendicular to the sheet-form base below a lowermost extent of the tip, is greater than 0.6.

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47. The touch fastener component of claim 46 wherein each fastener element has multiple heads extending in different directions and forming separate crooks.

48. The touch fastener component of claim 47 wherein each fastener element has

20 two heads extending in essentially opposite directions.

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49. The touch fastener component of claim 48 wherein each fastener element defines an upper well between the two oppositely-directed heads, the well extending down to a height, measured perpendicularly from the base, of at least about 70 percent of the overall

25 height of one of the two oppositely-directed heads.

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50. The touch fastener component of claim 48 wherein each fastener element has an overall length between opposite extents of the oppositely-directed heads, measured parallel to the base, of at least 1.8 times the overall height of the fastener element.

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51. The touch fastener component of claim 46 wherein the entrance height is between about 7 and 12 millimeters.

52. The touch fastener component of claim 46 wherein the crook overhangs a surface of the stem, and wherein the overhung stem surface extends at an inclination angle of between about 20 and 30 degrees with respect to a normal to the base.

53. The touch fastener component of claim 46 wherein each fastener element has an overall height of between about 10 and 50 millimeters.

54. The touch fastener component of claim 46 wherein each fastener element head has an overall height of between about 10 and 20 millimeters.

55. The touch fastener component of claim 46 wherein each fastener element crook defines an overall crook height, measured perpendicular to the sheet-form base from a lowermost extent of an associated tip to an uppermost extent of the crook, of at least 6.0 millimeters.

56. The touch fastener component of claim 46 wherein the crook defines an under crook angle of at least 180 degrees.

57. The touch fastener component of claim 46 wherein the head has an overall thickness, measured parallel to the base and perpendicular to a plane of the crook, that is greater than the entrance height of the crook.

58. A method of forming a touch fastener component having a sheet-form base and an array of fastener elements, the method comprising:

introducing molten resin to a peripheral surface of a rotating mold roll defining an array of inwardly-extending cavities each including

a stem region extending inwardly from the peripheral surface, and



a head region extending laterally from a distal end of the stem region to a blind tip, the head region bounded by an outer surface forming a crook, each head region having an overall height, measured radially from a lowermost extent of the tip to an innermost extent of the head region, that is greater than 55 percent of an overall depth of the cavity, measured radially from the peripheral surface;

applying sufficient pressure to force the resin into the cavities to mold an array of fastener elements, while forming a sheet of the resin on the peripheral surface of the mold roll;

cooling the resin in the cavities; and then

stripping the sheet of resin from the surface of the mold roll, thereby pulling heads of the fastener elements formed in the head regions of the cavities through the stem regions of the cavities to remove the fastener elements from the cavities.

59. A method of forming a touch fastener component having a sheet-form base and an array of fastener elements, the method comprising:

introducing molten resin to a peripheral surface of a rotating mold roll defining an array of inwardly-extending cavities each including

a stem region extending inwardly from the peripheral surface, and

two head regions extending laterally from a distal end of the stem region to corresponding, blind tips, the head regions bounded by outer cavity surfaces forming crooks, at least one of the head regions having an overall height, measured radially from a lowermost extent of the tip to an innermost extent of the head region, that is greater than half of an overall depth of the cavity, measured radially from the peripheral surface;

applying sufficient pressure to force the resin into the cavities to mold an array of fastener elements, while forming a sheet of the resin on the peripheral surface of the mold roll;

cooling the resin in the cavities; and then

stripping the sheet of resin from the surface of the mold roll, thereby pulling heads of the fastener elements formed in the head regions of the cavities through the stem regions of the cavities to remove the fastener elements from the cavities.

60. A method of forming a touch fastener component having a sheet-form base and an array of fastener elements, the method comprising:

introducing molten resin to a peripheral surface of a rotating mold roll defining an array of inwardly-extending cavities each including

- 5 a stem region extending inwardly from the peripheral surface, and
- a head region extending laterally from a distal end of the stem region to a blind tip, the head region bounded by an outer surface forming a crook,
- each cavity having a bulk aspect, defined as a ratio of the product of an overall length of the cavity, measured circumferentially outside an elevation of the tip, and cavity
- 10 thickness, measured axially along the mold roll, to an overall depth of the fastener element cavity, measured radially from the peripheral surface, of more than 0.020 inch (0.51 mm);
- applying sufficient pressure to force the resin into the cavities to mold an array of fastener elements, while forming a sheet of the resin on the peripheral surface of the mold roll;
- 15 cooling the resin in the cavities; and then
- stripping the sheet of resin from the surface of the mold roll, thereby pulling heads of the fastener elements formed in the head regions of the cavities through the stem regions of the cavities to remove the fastener elements from the cavities.

20 61. A method of forming a touch fastener component having a sheet-form base and an array of fastener elements, the method comprising:

introducing molten resin to a peripheral surface of a rotating mold roll defining an array of inwardly-extending cavities each including

- 25 a stem region extending inwardly from the peripheral surface, and
- a head region extending laterally from a distal end of the stem region to a blind tip, the head region bounded by an outer surface forming a crook, each crook having an overall height, measured radially from a lowermost extent of the tip to an innermost extent of the crook, that is greater than 0.6 times a radial distance from the peripheral surface to the tip.
- n overall depth of the cavity, measured radially from the peripheral surface;

applying sufficient pressure to force the resin into the cavities to mold an array of fastener elements, while forming a sheet of the resin on the peripheral surface of the mold roll;

cooling the resin in the cavities; and then

- 5 stripping the sheet of resin from the surface of the mold roll, thereby pulling heads of the fastener elements formed in the head regions of the cavities through the stem regions of the cavities to remove the fastener elements from the cavities.